Public Health England

Protecting and improving the nation's health

National HIV self-sampling service

November 2017 to October 2018

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Contents

Executive summary

In November 2015, based on the success of 2 national pilots, Public Health England (PHE) and local authorities co-commissioned and launched a nationwide HIV self-sampling service for key populations most affected by HIV (www.freetesting.hiv). In February 2016, the service was devolved to participating local authorities who have since taken responsibility for commissioning the service for their areas. National commissioning of the service by PHE occurs during pre-approved periods of time during national HIV prevention campaigns including National HIV Testing Week. The National HIV Self-Sampling Steering group co-chaired by PHE and a local authority representative has responsibility for service governance and quality management.

Report objectives

- to share data and learning from the national HIV self-sampling service with national, regional and local stakeholders
- to enhance understanding of who is accessing the service and whether it is reaching key groups (including gay and bisexual men and black African communities) and first-time testers

Methods

Disaggregated anonymised data from service users ordering and returning kits from 1 November 2017 to 31 October 2018 were analysed. Data analysis included: ethnicity, gender, sexual orientation, self-reported risk factors, local authority residency, and HIV testing information.

Key findings

- between November 2017 and October 2018, 40,681 kits were ordered of which 24,558 (60.37%) were returned
- of those returned, 0.98% (241) of specimens were reactive - this translates to a cost per reactive specimen of £949
- the service has been successful at engaging first time testers and those who have not tested for more than a year:
    - a total of 6,416 (26.09%) kits were tested from users who had never had an HIV test before, of these 84 (1.31%) specimens were reactive.
    - a total of 7,814 (31.78%) users reported that they last tested more than 12 months prior to this test, of those 79 (1.01%) were reactive
- demand for the HIV self-sampling service is highest among gay and bisexual men who made up 67.79% of kits tested, of these 0.98% were reactive

- a total of 1,868 kits were tested from black African service users which represented 7.60% of all kits tested with a reactivity rate of 1.82%

Conclusions

The national HIV self-sampling service continues to be successful at engaging key populations most affected by HIV across the nation including those who have never tested for HIV before.

The national HIV self-sampling service offers a low-cost HIV testing service and will continue as part of a combination prevention programme implemented for the elimination of HIV in England.

1. Background

The aim of the national HIV self-sampling service is to provide a cost efficient and clinically robust remote HIV self-sampling service for sexually active individuals aged 16 years and over. Emphasis is placed on increasing HIV testing amongst key populations including men who have sex with men (MSM), black African populations, as well as other individuals at increased risk of HIV.

The service, which aims to complement other local HIV testing services, is run entirely by the appointed provider (Preventx Limited) who was selected through a competitive tendering process. The service is free at the point of use to the user and is independent from other STI remote sampling and testing services.

Local authorities across England fund use of the service by their residents, after entering into an individual contract with the service provider (Preventx Limited) based on a framework agreement that is managed by ESPO (Eastern Shires Purchasing Organisation) on behalf of PHE (see Appendix 1 for further details on the process for signing up to the framework).

1.1 Service scope

Preventx Limited is responsible for HIV self-sampling service provision delivered through www.freetesting.hiv. Preventx Limited is responsible for maintaining the website, kit fulfilment and testing returned samples from their Sheffield-based laboratory. Communication of reactive results has been subcontracted to Yorkshire MESMAC, an organisation that offers sexual health services and is responsible for contacting the service user to facilitate their transition to an appropriate level 3 specialist sexual health service for confirmatory testing and support. For further information on service provision, see Appendix 2 for the HIV self-sampling service user pathway.

1.2 Service promotion

Local authorities procuring the service are responsible for local promotion. National promotion of the service is conducted during pre-approved periods of time supported by the national HIV prevention programme (www.hivpreventionengland.org.uk) including National HIV Testing Week.

1.3 Governance

The service is governed primarily through a multidisciplinary steering group. The secretariat function for this sits with PHE and the group is co-chaired by PHE and Local

Authority representatives. The group includes public health expertise, local authority commissioners, specialist virological expertise and procurement expertise. The group meets on a quarterly basis to review activity, manage performance and guide developments.

1.4 Cost benefits

The HIV self-sampling service complements current local HIV test provision by offering an online alternative to those who either have never tested for HIV or wish to test more regularly. Procurement of the national HIV self-sampling service currently offers cost benefits to both local and national government bodies. This large-scale procurement process offers low cost HIV testing; increased capacity and the potential to increase earlier diagnosis.

2. Service overview

Between November 2015 and October 2018 there were a total of 901,233 visits to the service website and with new visitors accounting for 76% of all traffic. A total of 122,439 kits were requested of which 69,918 (57.10%) were returned and 69,384 tested (see Table 1).

Table 1: Comparison of year 1 (November 15 - October 16), year 2 (November 16 – October 17), year 3 (November 17 – October 18) and total (November 15 – October 17) demand for the national HIV self-sampling service.

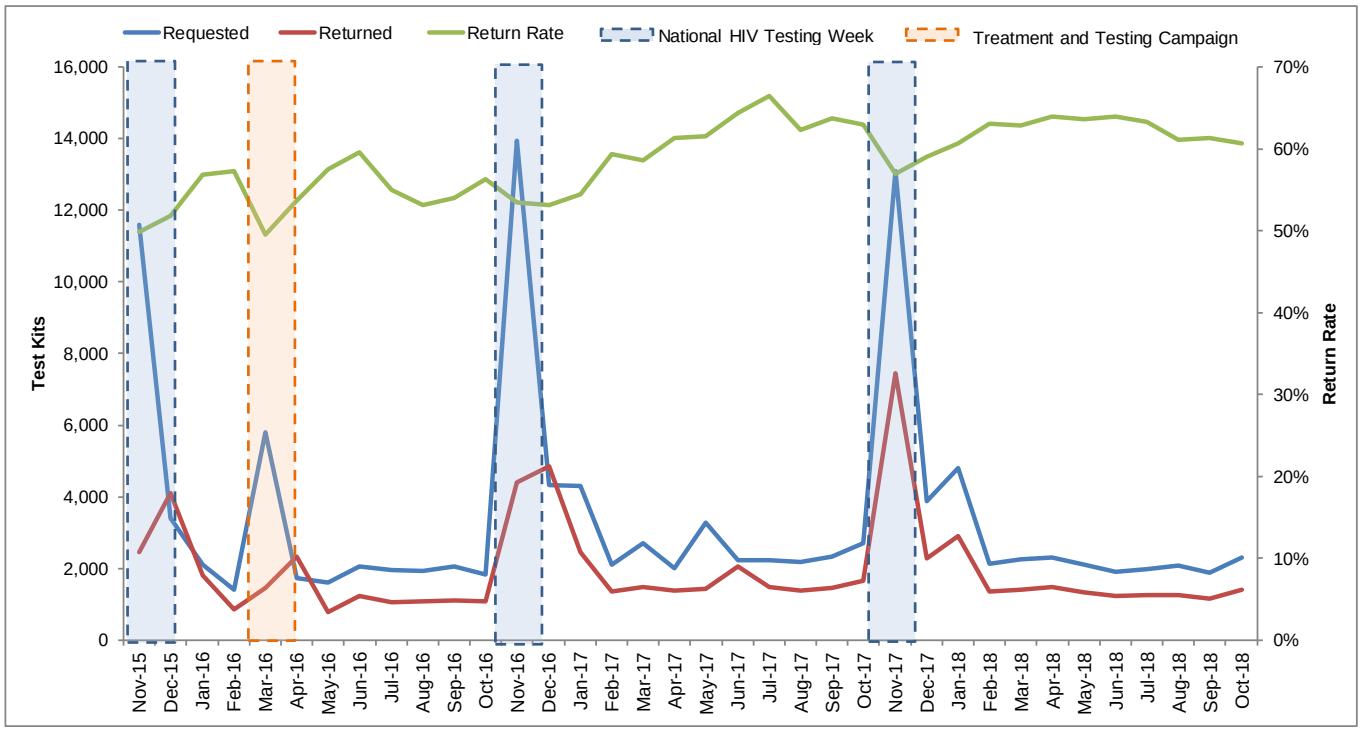
Service Users				
	Y1 (November 15 - October 16)	Y2 (November 16 - October 17)	Y3 (November 17- October 18)	Total (November 15 - October 18)
Visitor sessions	255,797	318,905	326,531	901,233
New visitors	187,550	239,683	241,252	688,485
Service lookups	129,262	145,046	143,672	417,980
Kits requested	37,449	44,309	40,681	122,439
Kits returned	19,727	25,633	24,558	69,918
Kits tested*	19,421	25,372	24,591	69,384
Return rate	52.68%	57.85%	60.37%	57.10%
Reactive results (rate)	237 (1.22%)	310 (1.22%)	241 (0.98%)	788 (1.14%)
High reactive (rate)	145 (0.75%)	143 (0.56%)	152 (0.62%)	440 (0.64%)
Low reactive (rate)	92 (0.47%)	167 (0.66%)	89 (0.36%)	348 (0.50%)

Term	Definition
Visitor sessions	Visitors to the service website
Service lookups	Visitors entering age and postcode to check eligibility
Kits requested	Number of kits orders during the time period
Kits returned	Total number of kits returned to laboratory. This number has been adjusted to match the time period when they were requested
Kits tested	Kits tested include all kits returned during the time period
Return rate	Rate calculated based on kits returned and kits requested
Reactive results	When the service testing algorithm indicates the presence of HIV antibodies or antigens, the specimens are identified as reactive results and categorised as either high or low. This is not equivalent to an HIV diagnosis. All reactive are referred to clinical services for confirmation
Reactive rate	Indicates rate of all reactive results over kits tested
High reactive	Specimens with reactivity above the Cut Off Index (COI)**
Low reactive	Specimens with reactivity between 1 and the Cut Off Index (COI)

*The number of tested may be higher than the kits ordered as it includes tests ordered in previous quarters.
**Cut Off Index is a threshold value calculated for quantitative laboratory diagnostic techniques to determine a point of reactiveness.

Demand for the HIV self-sampling service peaks during the National HIV Testing Week (NHTW) (see Figure 1). The number of kits requested during the NHTW campaigns in November 2015, 2016 and 2017 were 11,596, 13,944 and 13,085 respectively. The rate of returned kits has increased over time from 51.8% in November 2015 to 60.7% in October 2018 (see Figure 1).

Figure 1: National HIV self-sampling service demand: numbers of kits requested and returned for November 2017- October 2018



2.1 Reactive results

The HIV self-sampling service used a 4th generation assay between 2015 and October 2017 after which a 5th generation assay was implemented. Specimens identified as reactive are categorised as either high or low but this is not equivalent to an HIV diagnosis. All individuals with a reactive result are referred to clinical services for confirmation. See Appendix 2 for details of the referral pathway.

The laboratory test algorithm includes repeat testing of reactive specimens using the same testing platform performed by the contracted laboratory (Preventx). Reactive specimens are re-tested using an alternative platform by an external laboratory as part of the internal quality assurance process.

2 Low vs high reactive results

To better understand how many positive diagnoses are being made through the service, we divide reactive results into 2 categories based on their Cut Off Index (COI). The COI for the 4th generation assay is 50 and for the 5th generation is 10. The definition for low and high reactives is as follows:

- low reactive result: specimens with reactivity between 1 and the COI
- high reactive result: specimens with reactivity above the COI

The internal quality assurance process of reactive results demonstrated that most high reactives were likely to have an HIV infection confirmed by the alternative testing platform. Specimens with a low reactive result were less likely to have an HIV infection confirmed by the alternative platform. Nonetheless all reactive results are immediately referred to appropriate services for further testing and clinical confirmation.

Results are delivered by telephone through a dual-script approach, one for low reactives and one for high reactives. This approach helps manage users' expectations while providing further information on the clinical pathway and offering other needed support.

The HIV self-sampling service has an overall combined reactivity rate of 1.14%, with a total of 788 reactive results from November 2015 to October 2018. Of these, 440 were categorised as highly reactive and 348 as low reactive, rates of 0.64% and 0.50% respectively. A lower reactivity rate was observed in year 3 (0.98%), compared to the 2 previous years of the service (see Table 1).

2.3 Laboratory results

Equivocal samples are those that are initially identified as reactive results but could not be repeated (for example, due to insufficient volumes of blood) or, less frequently, gave a non-reactive result on the repeat test. There were 34 equivocal samples between November 2017 and October 2018. These results are included as reactive in the subsequent tables and analysis. This is because service users with equivocal results are mostly likely to be reactive and as such are referred for follow-up in the usual way (see Table 3 and Appendix 2).

Haemolysed samples are those where the membrane of the red blood cells has broken down, causing the release of haemoglobin and other internal components into the surrounding fluid. Haemolysis is a common occurrence seen in serum samples and can compromise the laboratory's test parameters. Some known causes are: delays in postal services, not allowing alcohol from the swab to fully dry before sample collection and extreme weather. During Year One of the service the proportion of haemolysed samples was 7.00% (n=1,362). Following improvements implemented to mitigate the causes of haemolysis the proportion of haemolysed samples decreased to 2.68% (n=660) in year 3.

Insufficient samples are those that are received with too little blood to conduct the required testing. In Year One the proportion of insufficient samples was 2.31% (n=448). A similar proportion of insufficient samples was observed in year 3 (n=582; 2.37%). In cases where the specimen received is not eligible for testing due to lack of volume or haemolysis, users are prompted to request a new kit to collect a new specimen.

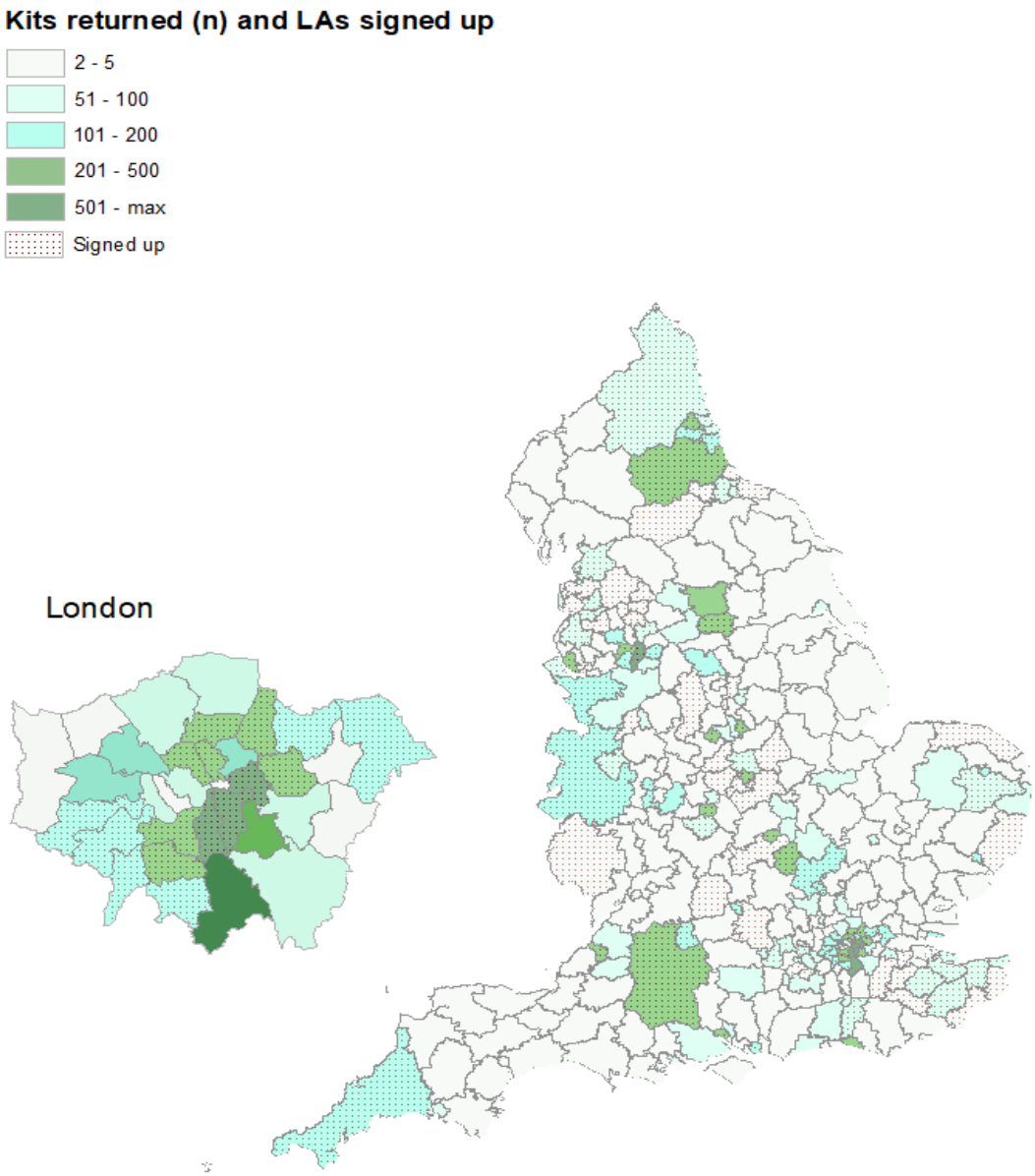
Table 3: National HIV self-sampling service laboratory records for specimens received between November 2017- October 2018.

	Samples	Proportion of total kits returned
Equivocal	34	0.14%
Haemolysed	660	2.68%
Insufficient	582	2.37%

2.4 Geography

The service is available to residents of all Local Authorities (LAs) during periods of national campaigns and to residents of LAs that commission the service outside of these time periods. Between November 2017 and October 2018, 81 local authorities commissioned the service with one LA ending it during this time period. The most kits returned per LA was 964, the lowest number was 2 (see Figure 2).

Figure 2: Number of kits returned and local authorities signed up to the HIV self-sampling service. November 2017 - October 2018.



Of all the kits tested during this year period nearly a third (n=7,151) came from London residents. After London, the regions of the North West (n=3,632) and the South East (n=3,463) had the highest total number of kits tested. This reflects the size of the population in each region, the size of the populations most at risk in each region and the

number of LAs signed up to the service. The region with significantly higher reactivity than other areas was the West Midlands where 1.77% of specimens were reactive.

Table 4: Number of kits tested, proportion of total kits tested, number of reactives and reactive rates by PHE region. November 2017 - October 2018.

	Number of kits tested	Proportion of total kits tested	Reactive	Reactive rate	ONS 2016 population estimates[1]
East Midlands	2,285	9.29%	20	0.88%	3,888,026
East of England	2,438	9.91%	19	0.78%	4,981,535
London	7,151	29.08%	75	1.05%	7,012,189
North East	1,150	4.68%	8	0.70%	2,173,467
North West	3,632	14.77%	29	0.80%	5,876,523
South East	3,463	14.08%	29	0.84%	7,343,292
South West	1,551	6.31%	17	1.10%	4,581,794
West Midlands	1,691	6.88%	30	1.77%	4,712,392
Yorkshire and The Humber	1,230	5.00%	14	1.14%	4,412,241
Total	24,591	100%	241	0.98%	44,981,459

1. ONS 2016 population estimates for residents aged 16 and over.

2.5 Cost per reactive

Between November 2017 and October 2018, 241 specimens were reactive translating to an overall cost per reactive of £948.80 and a cost per high reactive of £1,502.76 (see Table 5).

Table 5: Cost[1] of self-sampling service by kits reactive. November 2017-October 2018.

Number of kits	Numbers and costs
Kits requested	40,686
Kits returned	24,508
Reactive results	
Reactive results (rate)	241 (0.98%)
High reactive (rate)	152 (0.34%)
Cost per reactive result	
All reactive results	£948.80
High reactive	£1,502.76

1. Costs include online platform, testing kits, laboratory processing, results management and provision of data. Costs do not include the national campaign or costs associated with management and oversight of the service.

2.6 Users satisfaction

All service users were asked to rate their experience online. Between November 2017 and October 2018, the service received feedback from 1,733 patients which showed that 98.2% rated their satisfaction as good or excellent.

3. Service users

3.1 Overall

Upon accessing the self-sampling website, users are asked their age, gender, the gender of their sexual partners, their ethnicity and HIV testing history. Data from kits returned and tested show that the service is most frequently used by gay and bisexual men. Among men, 14,487 kits were received from men having sex with men only and 2,184 from men having sex with men and women. Individuals reporting only heterosexual sex were the second largest group to use the HIV self-sampling service from whom a total of 7,263 kits (29.54%) were tested. Among those reporting only heterosexual sex, demand for the service was almost 50% higher among women (4,277) compared to men (2,986) (see Table 6).

The median age of users for whom kits were tested was 27 but ranged from 16 to 89 years of age. Reactivity was higher in older age groups and users between 46 and 65 had significantly higher rates of reactivity compared to those aged between 16 and 25 (see Table 6).

Almost 80% of kits were from service users who identified themselves as being of white ethnicity of whom 0.84% were reactive. Kits from users identifying as black African and other Asian backgrounds had significantly higher reactivity rates than kits from white service users (see Table 6).

Just over a quarter of kits tested were from service users that reported never having had an HIV test before and of those 1.31% were reactive. A further 31.78% came from users that reported testing more than 12 months prior to this test and of those 1.01% were reactive.

Table 6: All service users. Number of kits tested, proportion of total kits tested, number of reactives and reactive rates by gender, sexual behaviour, age group, ethnicity and testing history. November 2017- October 2018.

	Kits tested	Proportion of total kits tested	Reactive	Reactive rate	*p-value*[2]
Gender and sexual behaviour[1]					
Men					
Men reporting sex only with men	14,487	58.91%	142	0.98%	-
Men reporting sex with men and women	2,184	8.88%	21	0.96%	0.992
Men reporting sex only with women	2,986	12.14%	27	0.90%	0.724
Women					
Women reporting sex with men and women	503	2.05%	6	1.19%	-
Women reporting sex only with men	4277	17.39%	44	1.03%	0.674
Women reporting sex only with women (WSW)	154	0.63%	1	0.65%	0.549
Age group					
16-25	10,381	42.21%	83	0.80%	-
26-35	8,699	35.37%	90	1.03%	0.089
36-45	3,280	13.34%	33	1.01%	0.262
46-55	1,555	6.32%	24	1.54%	0.004
56-65	528	2.15%	11	2.08%	0.003
>65	148	0.60%	0	0.00%	-
Ethnicity					
White	18,974	77.16%	159	0.84%	-
Black African	1,868	7.60%	34	1.82%	<0.001
Other Black	534	2.17%	9	1.69%	0.243
South Asian	705	2.87%	3	0.43%	0.041
Other Asian Background	509	2.07%	11	2.16%	0.002
Latin American	235	0.96%	3	1.28%	0.468
Other[3]	1,766	7.18%	22	1.25%	0.080
Testing history					
Within the last year	10,214	41.54%	78	0.76%	-
Over 1 year ago	7,814	31.78%	79	1.01%	0.001
Never tested	6,416	26.09%	84	1.31%	0.770
Unknown	147	0.60%	0	0.00%	-
Total	24,591		241	0.98%	

1. Trans people are included in this table according to their reported gender identity and the sex of their reported partners.
2. Where the p value is reported as (–). This is the comparator group against which the other groups were tested using univariate logistic regression.
3. Category 'Other' includes service users who self-describe as: other ethnic group and other mixed background.

3.2 Gay and bisexual men

Despite recent declines in numbers of new HIV diagnoses among gay and bisexual men they remain the group most at risk of HIV infection in the UK[1]. In this analysis men reporting sex with men only (n=14,487), both men and women (n=2,184) and trans men reporting sex with men (n=66) are included. The median age for kits tested from gay and bisexual men service users was 27 years with the youngest service user aged 16 years and the oldest 86 years (see Table 7).

The highest reactivity rates (1.41% and 1.40%) were observed in specimens from the 46-55 and 56-68 age groups respectively. However, these were not significantly higher than in the youngest age group (p=0.084 and 0.262 respectively) (see Table 7).

Of the kits tested from gay and bisexual men the majority (86.36%) were from service users who reported their ethnicity as white. The reactive rate in this group was 0.88%. Reactivity rates for other Asian backgrounds (2.83%; p<0.001) and Other Black ethnicities (2.40%; p=0.048) were significantly higher than white gay and bisexual men service users (see Table 7).

National guidelines advise that gay and bisexual men should test for HIV at least once a year and up to once every 3 months if they are having condomless sex with new partners [2, 3]. In the National HIV Self-Sampling Service nearly one in 5 kits tested from gay and bisexual men (n=3,232) came from individuals who reported this as their first ever HIV test and of those 1.67% were reactive. A further 5,130 (30.77%) had tested over a year ago and of these 0.97% were reactive (see Table 7). The proportion of service users who tested for HIV within the last year increased from 47.19% in year 2 to 49.42% in year 3.

Reactivity was significantly higher in those who reported between 6 and 12 condomless partners in the previous 12 months (1.88%; p =0.020; see Table 7) compared to those reporting no condomless sex. The proportion of gay and bisexual men service users who report more than one condomless partner in the last 12 months has increased from 41.17% (n=7,125) to 43.60% (n=7,270) between year 2 and year 3.

A minority of men (10.41%) reported usually or always having sex under the influence of alcohol or drugs. 4 in 10 gay and bisexual men tested (n=6,849) reported never having sex under the influence of alcohol or recreational drugs. Nearly half (n=8,002; 48.00%) of gay and bisexual men service users reported sometimes having sex under the influence of alcohol or recreational drugs with a significant reactivity rate of 1.20% (p=0.017) (see Table 7).

Table 7: Gay and bisexual men[1]. Number of kits tested, proportion of total kits tested, number of reactives and reactive rates by age group, ethnicity, testing history, condomless sex and sex under the influence of alcohol and recreational drugs. November 2017 and October 2018.

	Kits tested	Proportion of total kits tested	Reactive	Reactive rate	*p-value*[2]
Age group					
16-25	6,694	40.15%	58	0.87%	-
26-35	6,187	37.11%	68	1.10%	0.181
36-45	2,098	12.58%	15	0.71%	0.505
46-55	1,137	6.82%	16	1.41%	0.084
56-65	429	2.57%	6	1.40%	0.262
>65	126	0.76%	0	0.00%	-
Ethnicity					
White	14,401	86.38%	127	0.88%	
Black African	166	1.00%	1	0.60%	0.703
Other Black	167	1.00%	4	2.40%	0.048
South Asian	388	2.33%	3	0.77%	0.821
Other Asian Background	353	2.12%	10	2.83%	<0.001
Latin American	181	1.09%	3	1.66%	0.278
Other[3]	1,015	6.09%	15	1.48%	0.058
Testing history					
Within the last year	8,238	49.42%	59	0.72%	-
Over 1 year ago	5,130	30.77%	50	0.97%	0.107
Never tested	3,232	19.39%	54	1.67%	<0.001
Unknown	71	0.43%	0	0.00%	-
Condomless sex					
No	2,724	16.34%	23	0.84%	-
Yes, with 1 partner	6,653	39.91%	63	0.95%	0.636
Yes, with 2-5 partners	6,218	37.30%	57	0.92%	0.738
Yes, with 6-12 partners	691	4.14%	13	1.88%	0.020
Yes, with more than 12 partners	361	2.17%	6	1.66%	0.138
Unknown	24	0.14%	1	4.17%	0.118
Sex under the influence of alcohol or recreational drugs					
Never	6,849	41.08%	55	0.80%	-
Sometimes	8,002	48.00%	96	1.20%	0.017
Usually	1,471	8.82%	10	0.68%	0.627
Always	265	1.59%	1	0.38%	0.453
Unknown	84	0.50%	1	1.19%	0.695
Total	16,671		163	0.98%	

1. 61 trans men who reported sex with men are included in this table.
2. Where the p value is reported as (–). This is the comparator group against which the other groups were tested using univariate logistic regression.
3. Category 'Other' includes service users who self-identify as: other ethnic group and other mixed background.

3.3 Black African service users

In 2007, black African men and women comprised 68% of heterosexual adults newly diagnosed with HIV [1, 4]. Whilst this proportion has decreased to 38% in 2017, they remain a population at increased risk of HIV infection and a key group towards which the HIV self-sampling service is targeted.

A total of 1,868 kits were tested from service users reporting their ethnicity as black African and of those 34 (1.82%) were reactive. Most kits tested from black African service users reported heterosexual sex with a reactivity of 1.95% (22 reactive tests in heterosexual women and 10 in heterosexual men).

The median age of black African service users was 29 years and ranged from 16 to 74 years of age. Reactivity increased with age (see Table 8).

Nearly one in 5 (19.8%) of kits tested from black African service users came from first time testers. At 1.89%, the highest reactivity rate was observed in those who tested over a year ago (2.11%) (see Table 8).

Most kits tested from this population (85.39%) were from service users that reported between one and 5 condomless partners in the last year but there was no significant difference in reactivity according to the number of partners reported. The highest reactivity rate was observed in those who reported not having condomless partners in the last year (3.23%)

Over half of black African service users (60.22%) reported never having sex under the influence of alcohol or recreational drugs.

Table 8: Black African service users. Number of kits tested, proportion of total kits tested, number of reactives and reactive rates by gender, sexual behaviour, age group, ethnicity and testing history. November 2017-October 2018.

	Kits tested	Proportion of total kits tested	Reactive	Reactive rate	*p-value*[1]
Sexual orientation					
MSM	166	8.89%	1	0.60%	-
Heterosexual	1,642	87.90%	32	1.95%	0.244
Women reporting sex with both men and women	33	1.77%	0	0.00%	-
Women reporting sex only with women (WSW)	27	1.45%	1	3.70%	0.196
Age group					
16-25	716	38.33%	8	1.12%	-
26-35	576	30.84%	9	1.56%	0.487
36-45	427	22.86%	10	2.34%	0.116
46-55	129	6.91%	4	3.10%	0.093
56-65	20	1.07%	3	15.00%	<0.001
>65	0	0.00%	0	0.00%	-
Testing history					
Within the last year	705	37.74%	11	1.56%	-
Over 1 year ago	760	40.69%	16	2.11%	0.44
Never tested	370	19.81%	7	1.89%	0.688
Unknown	33	1.77%	0	0.00%	-
Condomless sex					
No	217	11.62%	7	3.23%	-
Yes, with 1 partner	986	52.78%	18	1.83%	0.196
Yes, with 2-5 partners	609	32.60%	9	1.48%	0.118
Yes, with 6-12 partners	35	1.87%	0	0.00%	-
Yes, with more than 12 partners	9	0.48%	0	0.00%	-
Unknown	12	0.64%	0	0.00%	-
Sex under the influence of alcohol or recreational drugs					
Never	1125	60.22%	21	1.87%	-
Sometimes	645	34.53%	12	1.86%	0.993
Usually	66	3.53%	0	0.00%	-
Always	17	0.91%	0	0.00%	-
Unknown	15	0.80%	1	6.67%	0.211
Total	1,868		34	1.82%	

1. Where the p value is reported as (–). This is the comparator group against which the other groups were tested using univariate logistic regression.

3.4 Women

In the following analysis, all those identifying as women (including 58 trans women) are included in this analysis including: women reporting sex with men only (n=4,241), women reporting sex with both men and women (n=482) and women reporting sex with only women (n=153). A total of 51 reactive specimens (1.03%) were identified from 4,934 kits tested. The median age of women was slightly younger than overall at 25 years and ranged from 16 to 89 years of age. Kits tested from users aged 46-55 years had a reactivity (2.30%) significantly higher than women aged 16-25 years (p=0.0041) (see Table 9).

The majority of kits tested from women (57.90%) came from those reporting their ethnicity as white (n=2,857; reactivity rate=0.67%). Nearly one in 4 kits were from women who reported their ethnicity as black African (n=1,127), with a significantly higher reactivity rate (2,04%; p<0.001) compared to other ethnic groups (see Table 9).

Nearly 2 in 5 women (38.61%) reported never having tested before and a further 35.77% had last tested over a year ago. The highest reactivity was observed in kits from women who tested within the last year with no significant difference in reactivity according to testing history (see Table 9).

Just under half of the kits tested from women came from those who reported 2 or more condomless partners in the previous 12 months (46.23%; n=2,281). Although not significant, the reactivity rate was highest (2.13%) in female service users who reported condomless sex with more than 12 partners. Women who reported condomless sex with 2 to 5 partners had a significantly lower reactive rate (0.78%; p=0.046) compared to those not having condomless sex (see Table 9).

Three in five women (61.84%) reported always, usually, or sometimes having sex under the influence of alcohol or recreational drugs. Although not significant, the reactive rate was higher (1.24%) among women who reported never having sex under the influence of alcohol or recreational drugs compared to those who did (see Table 9).

Table 9: Women[1]. Number of kits tested, proportion of total kits tested, number of reactives and reactive rates organised by age group, ethnicity, testing history, condomless sex and sex under the influence of alcohol and recreational drugs. November 2017 - October 2018.

	Kits tested	Proportion of total kits tested	Reactive	Reactive rate	*p-value*[2]
Age group					
16-25	2,613	52.96%	22	0.84%	-
26-35	1,396	28.29%	14	1.00%	0.607
36-45	660	13.38%	9	1.36%	0.221
46-55	217	4.40%	5	2.30%	0.041
56-65	39	0.79%	1	2.56%	0.275
>65	9	0.18%	0	0.00%	-
Ethnicity					
White	2,857	57.90%	19	0.67%	-
Black African	1,127	22.84%	23	2.04%	<0.001
Other Black	291	5.90%	5	1.72%	0.058
South Asian	80	1.62%	0	0.00%	-
Other Asian Background	77	1.56%	0	0.00%	-
Latin American	24	0.49%	0	0.00%	-
Other[3]	478	9.69%	4	0.84%	0.675
Testing history					
Within the last year	1,225	24.83%	14	1.14%	-
Over 1 year ago	1,765	35.77%	18	1.02%	0.748
Never tested	1,905	38.61%	19	1.00%	0.698
Unknown	39	0.79%	0	0.00%	-
Condomless sex					
No	364	7.38%	7	1.92%	-
Yes, with 1 partner	2277	46.15%	25	1.10%	0.187
Yes, with 2-5 partners	2049	41.53%	16	0.78%	0.046
Yes, with 6-12 partners	185	3.75%	2	1.08%	0.469
Yes, with more than 12 partners	47	0.95%	1	2.13%	0.924
Unknown	12	0.24%	0	0.00%	-
Sex under the influence of alcohol or recreational drugs					
Never	1853	37.56%	23	1.24%	-
Sometimes	2439	49.43%	23	0.94%	0.349
Usually	503	10.19%	4	0.80%	0.408
Always	109	2.21%	1	0.92%	0.766
Unknown	30	0.61%	0	0.00%	-
Total	4,934		51	1.03%	

1. Women includes women reporting sex with men (n=4,241), women who report sex with both men and women (n=482), women who report sex only with women (n=153) and trans women (n=58).
2. Where the p value is reported as (–). This is the comparator group against which the other groups were tested using univariate logistic regression.
3. Category 'Other' includes service users who self-describe as: other ethnic group and other mixed background.

3.5 Heterosexual men

This analysis consists of people who identify as men (including 5 trans men) and reported only heterosexual sex. The median age of male service users engaging in heterosexual sex was 28 years and ranged from 16 to 86. Of the 2,986 kits tested 27 (0.90%) were reactive and kits tested from men in the age groups between 36 and 65 had significantly higher rates of reactivity than those aged 35 and under (36-45: p=0.006; 46-55: p=0.040 and 56-65: p<0.001) (see Table 10).

Overall, 57.47% of kits tested from heterosexual men came from those that reported their ethnicity as white and of those 0.76% (n=21) were reactive. Of the kits returned by heterosexual men, 19.26% came from those who identified as black African. The reactivity rate was significantly higher than other ethnic groups (1.74%; p=0.047) (see Table 10).

Kits from men reporting only heterosexual sex had lower reactivity rate (0.90%) than overall (0.98%). Two in 5 heterosexual men (42.83%) reported never having tested before and 11 of their specimens (0.86%) were reactive (see Table 10).

There was no clear pattern in reactivity according to the number of condomless partners reported. Excluding the 20 men for whom the number of condomless partners is unknown, the reactivity rate (1.71%) was highest in kits from men who reported no condomless partners in the previous 12 months (see Table 10).

Half of all kits tested from this group of men were from those who reported sometimes having sex under the influence of alcohol or recreational drugs and these men also had the highest reactivity rate (1.05%) (see Table 10).

Table 10: Men reporting heterosexual sex only[1]. Number of kits tested, proportion of total kits tested, number of reactives and reactive rates by age group, ethnicity, testing history, condomless sex, sex under the influence of alcohol and recreational drugs. November 2017-October 2018.

	Kits tested	Proportion of total kits tested	Reactive	Reactive rate	*p-value*[2]
Age group					
16-25	1,074	35.97%	3	0.28%	-
26-35	1,116	37.37%	8	0.72%	0.163
36-45	522	17.48%	9	1.72%	0.006
46-55	201	6.73%	3	1.49%	0.040
56-65	60	2.01%	4	6.67%	<0.001
>65	13	0.44%	0	0.00%	-
Ethnicity					
White	1,716	57.47%	13	0.76%	-
Black African	575	19.26%	10	1.74%	0.047
Other Black	76	2.55%	0	0.00%	-
Asian	237	7.94%	0	0.00%	-
Other Asian Background	79	2.65%	1	1.27%	0.62
Latin American	30	1.00%	0	0.00%	-
Other[3]	273	9.14%	3	1.10%	0.560
Testing history					
Within the last year	751	25.15%	5	0.67%	-
Over 1 year ago	919	30.78%	11	1.20%	0.274
Never tested	1,279	42.83%	11	0.86%	0.634
Unknown	37	1.24%	0	0.00%	-
Condomless sex					
No	410	13.73%	7	1.71%	-
Yes, with 1 partner	1,176	39.38%	9	0.77%	0.109
Yes, with 2-5 partners	1,216	40.72%	10	0.82%	0.136
Yes, with 6-12 partners	124	4.15%	1	0.81%	0.480
Yes, with more than 12 partners	40	1.34%	0	0.00%	-
Unknown	20	0.67%	0	0.00%	-
Sex under the influence of alcohol or recreational drugs					
Never	1,069	35.80%	8	0.75%	-
Sometimes	1,525	51.07%	16	1.05%	0.433
Usually	302	10.11%	2	0.66%	0.877
Always	58	1.94%	0	0.00%	-
Unknown	32	1.07%	1	3.13%	0.177
Total	2,986		27	0.90%	

1. Heterosexual sex among men includes (n=5) trans men reporting sex with women.
2. Where the p value is reported as (–). This is the comparator group against which the other groups were tested using univariate logistic regression.
3. Category 'Other' includes service users who self-describe as: other ethnic group and other mixed background.

3.6 Trans people

Upon accessing the service individuals are given the option to report their gender identity as trans male or trans female. All those self-identifying as either trans female or trans male are included in this analysis. A total of 124 kits were tested from service users who identified as trans-gender and of these, one kit was reactive (high reactive). The smaller number of tests limits the analysis of patterns of reactivity in this population but a summary is included below and in Table 11.

Over half of trans-gender service users (57%) were trans men who reported sex with men. This was the youngest group overall with a median age of 24 and 61.29% of tests in this population being from the 16-26 age group (see Table 11).

Nearly 4 in 5 (79.03%) trans-gender service users reported their ethnicity as white (see Table 11).

Rates of previous HIV testing were low with 38.71% reporting this as their first HIV test and a further 25.81% reporting a test more than 12 months previously (see Table 11).

Over half of all kits tested (51.61%) were from trans-gender service users who reported more than 2 condomless partners. Three in 5 (66.94%) reported sometimes, usually or always having sex under the influence of alcohol or recreational drugs (see Table 11).

Table 11: Trans people. Number of kits tested, proportion of total kits tested, number of reactives and reactive rates by sexual orientation, age group, ethnicity, testing history, condomless sex, sex under the influence of alcohol and recreational drugs. November 2017 - October 2018.

	Kits tested	Proportion of total kits tested	Reactive	Reactive rate	*p-value*[1]
Age group					
16-25	76	61.29%	1	1.32%	-
26-35	33	26.61%	0	0.00%	n/a
36-45	12	9.68%	0	0.00%	n/a
46-55	2	1.61%	0	0.00%	n/a
56-65	1	0.81%	0	0.00%	n/a
>65	0	0.00%	0	0.00%	
Ethnicity					
White	98	79.03%	1	1.02%	-
Black African	0	0.00%	0	0.00%	n/a
Other Black	2	1.61%	0	0.00%	n/a
South Asian	2	1.61%	0	0.00%	n/a
Other Asian Background	6	4.84%	0	0.00%	n/a
Latin American	2	1.61%	0	0.00%	n/a
Other[2]	14	11.29%	0	0.00%	n/a
Testing history					
Within the last year	44	35.48%	0	0.00%	-
Over 1 year ago	32	25.81%	0	0.00%	n/a
Never tested	48	38.71%	1	2.08%	n/a
Unknown	0	0.00%	0	0.00%	n/a
Condomless sex					
No	16	12.90%	0	0.00%	-
Yes, with 1 partner	43	34.68%	1	2.33%	
Yes, with 2-5 partners	53	42.74%	0	0.00%	n/a
Yes, with 6-12 partners	6	4.84%	0	0.00%	n/a
Yes, with more than 12 partners	5	4.03%	0	0.00%	n/a
Unknown	1	0.81%	0	0.00%	n/a
Sex under the influence of alcohol or recreational drugs					
Never	40	32.26%	0	0.00%	-
Sometimes	66	53.23%	1	1.52%	
Usually	10	8.06%	0	0.00%	n/a
Always	7	5.65%	0	0.00%	n/a
Unknown	1	0.81%	0	0.00%	n/a
Total	124		1	0.81%	

1. Where the p value is reported as (–). This is the comparator group against which the other groups were tested using univariate logistic regression.
2. Category 'Other' includes service users who self-describe as: Latin American, other black, other Asian background, other ethnic group and other mixed background.

4. Discussion

A total of 24,591 tests were conducted through the national HIV self-sampling service between November 2017 and October 2018. In this period, reactivity was higher in tests performed through the national HIV self-sampling service (0.98%) than in tests performed by community providers in 2017 (0.40%), reflecting the targeting of the service [1, 5]. The service has been successful at engaging key populations most affected by HIV, particularly gay and bisexual men who make up three quarters (16,671; 67.79%) of those having kits tested. Reactivity rates between users of different sexual orientations are not significantly different indicating that the targeting of higher risk heterosexuals has been successful.

At 124, the National HIV Self-Sampling Service has more trans people using the service than are reported to be tested in community settings [5]. However, challenges remain with engaging black and other minority ethnic communities. The service is targeted towards black African individuals but they make up only 19.26% and 1.00% of heterosexual and gay and bisexual male service users respectively.

The service has been effective at engaging individuals who have never tested for HIV before. Overall, one in 4 (26.09%) kits tested were from users who reported never having tested before (reactivity rate: 1.31%) and even in gay and bisexual men among whom testing rates are traditionally higher, one in 5 (19.39%) reported this as their first HIV test (reactivity rate: 1.67%). These findings confirm that online HIV testing services reach people at increased risk of HIV who are not accessing testing in other settings.

Trends in service activity correlate strongly with the linked HIV Prevention England campaigns, particularly National HIV Testing Week during which demand peaks and the service is open to all residents in England. The service is also promoted through local and regional campaigns for example the London HIV Prevention Programme. This commissioning model has enabled LAs to provide access to an online HIV testing service to their residents whilst avoiding the cost of individual procurement processes. The National Framework was also able to benefit from economy of scale and this is demonstrated with a cost per reactive lower than published elsewhere and in other settings [2, 6, 7].

The multi-disciplinary steering group consisting of commissioners, public health and virology experts has provided a successful monitoring system that has produced service improvements for over 3 years. These have included using behavioural research to increase return rates [8], identifying, investigating and reducing specimen haemolysis rates and reducing testing kit dispatch times. The steering group is also responsible for overseeing the future development of the service.

Self-sampling and self-testing are part of a combination prevention programme[9] in a strategy to end the AIDS epidemic by 2030[10], and are likely to remain a feature of the HIV testing landscape for the foreseeable future. The demand for these options has increased over time and they succeed in widening access particularly for those less likely to engage with traditional sexual health services. With appropriate targeting and linkage to local and national campaigns delivery of HIV testing through online platforms will be integral in reducing undiagnosed infection and eliminating HIV.

5. References

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9. UNAIDS, *Combination HIV Prevention: Tailoring and Coordinating Biomedical, Behavioural and Structural Strategies to Reduce New HIV Infections 10 A UNAIDS Discussion Paper* www.unaids.org/sites/default/files/media_asset/JC2007_Combination_Prevention_paper_en_0.pdf
10. UNAIDS, *On the Fast-Track to end AIDS. UNAIDS 2016–2021 Strategy.* www.unaids.org/sites/default/files/media_asset/20151027_UNAIDS_PCB37_15_18_EN_rev1.pdf.

6. Appendices

Appendix 1:

Who can sign up for the service?

The framework is specifically designed for use by PHE and English local authorities. However, it is available for use nationally by other public sector bodies, including, but not limited to:

- police and emergency services
- NHS and HSC Bodies
- central government departments and their agencies
- registered charities
- schools and academies

How to sign up for the service

Step 1: Complete the Customer Access Agreement and send it to ESPO at care@espo.org. The agreement will then be countersigned and returned. This does not commit the authority to anything, but it provides evidence of the transaction as part of an audit trail, helping to evidence the fact that you are procuring the framework. This ensures that the authority is exempt from undertaking EU-compliant advertising and supplier vetting.

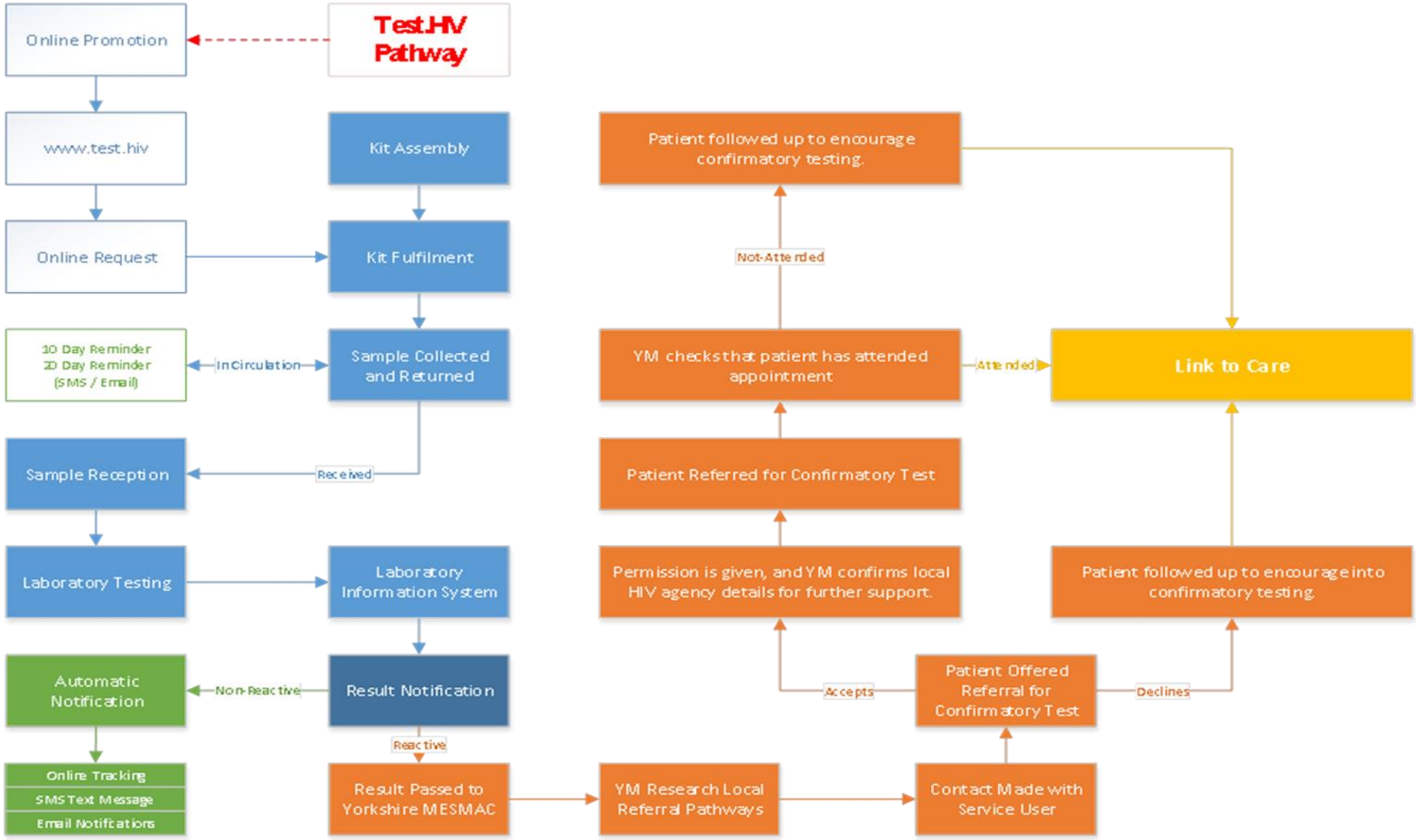
Step 2: Complete the Master Contract Schedule order form and send it to care@espo.org. Please quote ESPO Framework 3173_15 on all correspondence.

How to renew a current contract

To renew a contract, contact ESPO directly at care@espo.org quoting ESPO Framework 3173_15 on all correspondence.

Further information and all forms can be accessed through www.espo.org/Home or at the following direct link www.espo.org/Frameworks/Social-care/3173-HIV-Self-Sampling-Service. You can also contact Louise Logan at PHE at louise.logan@phe.gov.uk for further information on the service and how to sign up or renew a contract.

Appendix 2: HIV self-sampling service user pathway.



Appendix 3: Local areas that signed up to the HIV self-sampling service organised by Public Health England (PHE), by centre, November 2017- October 2018.

East Midlands	East of England	London	North East
Derby	Central Bedfordshire	Camden	Darlington
Derbyshire	Hertfordshire	City of London [1]	Durham
Leicester	Luton	Croydon	Gateshead
Leicestershire	Norfolk	Haringey Council	Hartlepool
Northamptonshire	Southend on Sea	Havering	Middlesbrough
Nottingham	Suffolk	Hounslow	Newcastle upon Tyne
Nottinghamshire		Islington	North Tyneside
		Kingston upon Thames	Northumberland
		Lambeth	Redcar & Cleveland
		Lewisham	South Tyneside
		Merton	Stockton-on-Tees
		Newham	Sunderland
		Redbridge	
		Richmond upon Thames	
		Southwark Council	
		Sutton	
		Tower Hamlets	
		Waltham Forest	
		Wandsworth Council	

North West	South East	South West	West Midlands	Yorkshire and Humber
Bolton	Brighton & Hove	Cornwall	Coventry	Wakefield
Blackpool	East Sussex	Bristol	Dudley	
Cheshire West & Chester	East Sussex	Swindon	Shropshire	
Knowsley	Hampshire	Wiltshire	Telford & Wrekin	
Lancashire	Kent		Warwickshire	
Liverpool	Milton Keynes		Wolverhampton	
Manchester	Oxfordshire			
Rochdale	Portsmouth			
Salford	Slough			
Tameside	Southampton			
Trafford	Surrey			
Wirral	West Sussex			
	Windsor and Maidenhead			
	Wokingham			

1. Service ended March 2018